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WATER QUANTITY SURVEYS

FEDERAL-PROVINCIAL COST SHARING

AGREEMENT

NEWFOUNDLAND

ANNUAL REPORT 1985-86

AUGUST 1986

TO: Mr. D. G. Jeans
Administrator for Newfoundland

Mr. S.L. Fenety
Administrator for Canada

In accordance with Article XII of the Memorandum of Agreement covering Water Quantity Surveys in the Province of Newfoundland, we submit herewith the annual report for fiscal year 1985-86.

Members of the Coordinating Committee

Wasi Ullah
Member for Newfoundland
St. John's, Newfoundland

R. D. McBride
Member for Canada
Dartmouth, Nova Scotia

AUGUST 1986

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INTRODUCTION

The year ending March 31, 1986 was the eleventh in which water quantity surveys in Newfoundland and Labrador were conducted under a Memorandum of Agreement between the Federal and Provincial Governments.

The Agreement establishes the basis on which cooperative water quantity surveys are made. It is administered for Canada by the Regional Director of the Inland Waters Directorate and for Newfoundland by the Assistant Deputy Minister, Department of Environment. A Coordinating Committee comprising of the Regional Chief, Water Resources Branch, Inland Waters Directorate and the Director, Water Resources Branch, Newfoundland Department of Environment, reports to the Administrators. It is the responsibility of the Coordinating Committee to prepare annually Schedules A and D for approval by the Administrators.

The Memorandum of Agreement includes four schedules:

1. Schedule A is a list of water quantity stations operated under the terms of the Agreement and their responsibility classification as: federal, federal-provincial or provincial.
2. Schedule B is a list of items that are to be included for cost sharing under the Agreement.
3. Schedule C details procedures for computing annual payments.
4. Schedule D provides a summary of annual payments.

Schedules A and D for 1985-86 are attached to this report in Appendix II and VII.

SUMMARY OF ACTIVITIES

The Canada-Newfoundland Coordinating Committee met once during the reporting period - on March 18, 1986. The main points covered during the meeting were as follows:

- The Annual Report for 1985-86 was reviewed. It was noted that the net accumulated difference in the balance of payments over the years of the Agreement was only $1,656.
- The Schedule "A" listings of gauging stations to be operated for 1986-87 was discussed. The final classification of the Junction Brook station, presently held in Federal 4 classification, will be decided at the 1987 Co-ordinating Committee meeting pending a proposed agreement on flood forecasting. The final decision on classification of the new stations constructed during 1985-86 was rendered by the Co-ordinators.
- The estimates on the cost of operation for 1986-87 was discussed briefly and approved. The major change from the previous year involved the redistribution of technicians' salaries between the Island and Labrador and the accounting of supervisory time for the area head position.
- For new station construction in 1986-87, it was agreed to set aside about $15,000 for the rebuilding of three cableways. With the funding available, both at the Federal and Provincial level, it was agreed that five new stations should be constructed. This would be dependent upon Water Resources Branch recovering a previously axed new technician position for Corner Brook.

- A proposed Memorandum of Understanding for recovery of costs associated with the purchase of 14 data collection platforms for Newfoundland was tabled at the meeting. The Province agreed to supply comments on the proposed Memorandum of Understanding. A discussion also took place on the servicing costs for DCPs and whether or not to mix these costs with the regular operational costs for hydrometric stations.
- The content of the WRB Discussion Paper on Level of Service for Real Time Data was summarized. The Province indicated that they would be willing to share in the costs for retrieval services.
- It was noted that the Atlantic Region sediment study had been completed by the consultant and that Water Resources Branch was presently in the process of addressing the recommendations through preparation of an action plan. Also noted were the plans for the staging of a workshop on sediment at Charlottetown in June 1986.
- The Province informed WRB that all future proposals for gauging station on crown lands will have to be registered and perused by other government agencies prior to issuance of permission.
- The Province stated willingness to share in the cost of a small contract to assess data from contributed stations. The initial assessment would only involve documentation on how data are determined.

A copy of the notes from the Co-ordinating Committee meeting is included in Appendix XI.

During 1985-86, 79 hydrometric stations were operated, designated as follows: Federal 16; Federal-Provincial 35; Provincial 28. The Province paid $195,563 toward the $358,890 operational costs of these stations.

Four sediment stations were operated during the year, designated as follows: Federal-Provincial 2; Provincial 2. The Province paid $7,650 toward the $8,432 operational costs of these stations.

Expansion of the Newfoundland hydrometric network continued with the construction of six new gauging stations. This construction was highlighted by the station on the Main River which was the first ever remote access hydrometic station to be constructed under contract. All construction materials and equipment were transported by truck to Sop's Arm where a series of slings by helicopter transferred everything to the site. The Province paid $36,787 toward the $55,416 total construction costs for the six new stations. Cost details of the construction program are shown on page 10.

An extensive maintenance program at gauging stations was conducted during the year. A listing of the major projects appears on page 9. All costs associated with the maintenance program are included with the operational costs for the Island and Labrador on page 6 and page 7, respectively.

The Newfoundland operations utilized two Federal COSEP students, one at St. John's and one at Corner Brook for a period of four months. These students assisted technical staff with office computations and participated in the regular field surveys and the gauging station construction and maintenance programs.

Under the Federal Water Resources Branch DCP network expansion program, one more Bristol-Aerospace data collection platform was

installed. This installation took place at the station, Exploits River below Noel Pauls Brook. A further six installations had been planned but these installations had to be deferred to 1986-87 due to late delivery of equipment and higher priority operational matters.

In accordance to the agreement struck by the Co-ordinators in April 1985, an additional 14 data collection platforms complete with all necessary operational components were purchased by Federal WRB. Cost recovery for this purchase will be through an imputed rental arrangement via Schedule "D" payments over a ten year period. Under this agreement, the data collection platforms will be installed during 1986-87 at existing gauging stations of interest to the Province.

There were no gauging stations discontinued during the year, however, as a result of a recount of contributed stations it was realized that for many years data have not been published, nor were available from Newfoundland Light and Power for publishing, for the following three stations:

Heart's Content River at Southern Cove Pond

New Chelsea Brook at Seal Cove Pond

Seal Cove River at White Hill Pond

This correction resulted in a change in the number of contributed statons from 17 to 14, as shown on Tables No. 1 and No. 3 in Appendix VIII.

WATER QUANTITY SURVEYS

PROVINCE OF NEWFOUNDLAND

ANNUAL COSTS FOR ISLAND - 1985-86

OPERATIONAL COSTS FOR HYDROMETRIC SURVEYS

	Estimated	Actual
Personnel - Basic Pay - 01, 02, 03, 04 (Salaries of hydrometric technician, including overtime - 4 technicians, 3/4 Supervisor, 1/2 Area Head)	$158,000	$150,829
Transportation and Communication		
Travel and Removal - 07	12,000	18,507
Transportation and Postage - 08	4,000	1,033
Telecommunication - 09	NIL	2
Professional and Special Services		
Professional Services - 11	1,200	725
Other Services - 15	2,000	832
Rentals		
Rentals - 16	16,000	20,473
Purchased Repair and Upkeep		
Equipment Purchased Repairs - 17	3,500	5,705
Building and Structure Repairs - 18	6,000	325
Utilities, Material and Supplies		
Public Utility Services - 19	2,000	2,210
Purchased Material - 20	12,000	13,015
Parts and Consumable Tools - 21	3,000	11,579
Other Costs - Data Processing Costs	8,500	8,270
-- Depreciation of Vehicles (5)	15,000	11,355
Depreciation of field equipment and instruments	11,000	10,664
TOTAL	$254,200	$255,524

WATER QUANTITY SURVEYS

PROVINCE OF NEWFOUNDLAND

ANNUAL COSTS FOR LABRADOR – 1985–86

OPERATIONAL COSTS FOR HYDROMETRIC SURVEYS

	Estimated	Actual
Personnel – Basic Pay – 01, 02, 03, 04 (Salaries of hydrometric technicians, including overtime – 1 Technician 1/4 Supervisor)	$ 47,500	$ 44,956
Transportation and Communication		
Travel and Removal – 07	13,000	12,502
Transportation and Postage – 08	3,500	3,206
Telecommunication – 09	NIL	76
Professional and Special Services		
Professional Services – 11	NIL	NIL
Other Services – 15	2,900	2,439
Rentals		
Rentals – 16	42,000	34,516
Purchased Repair and Upkeep		
Equipment Purchased Repairs – 17	500	NIL
Building and Structure Repairs – 18	NIL	NIL
Utilities, Material and Supplies		
Public Utility Services – 19	NIL	NIL
Purchased Material – 20	2,000	1,490
Parts and Consumable Tools – 21	500	626
Other Costs – Data Processing Costs	1,600	1,630
– Depreciation of field equipment and instruments	2,000	1,925
TOTAL	$115,500	$103,366

WATER QUANTITY SURVEYS

PROVINCE OF NEWFOUNDLAND

ANNUAL COSTS - 1985-86

OPERATIONAL COSTS SEDIMENT SURVEYS

	Estimated	Actual
Personnel - Basic Pay - 01, 02, 03, 04	$ NIL	NIL
Transportation and Communication		
Travel and Removal - 07	200	246
Transportation and Postage - 08	1,000	378
Telecommunication - 09	NIL	NIL
Professional and Special Services		
Professional Services - 11	3,500	2.721
Other Services - 15	NIL	45
Purchased Repair and Upkeep		
Equipment Purchased Repairs - 17	200	NIL
Building and Structure Repairs - 18	NIL	NIL
Utilities, Material and Supplies		
Public Utility Services - 19	Nil	NIL
Purchased Material - 20	100	NIL
Parts and Consumable Tools - 21	100	1,596
Other Costs - Sample Analysis	4,000	2,372
- Depreciation of field equipment and instruments	1,100	1,074
TOTAL	$ 10,200	$ 8,432

MAJOR MAINTENANCE PROJECTS

IN NEWFOUNDLAND

1985 - 86

Station	Project		Costs
Grey River near Grey River	Replacement of timber deadman with steel plate anchor and installation of safety anchor and loading platform for cableway.	Travel	$ 362
		Rentals	1,380
		Materials	152
		Parts	150
		Total	$2,044
Sheffield River near Trans Canada Highway	Replacement of timber deadman with steel plate anchor and installation of safety anchor	Travel	$ 484
		Labour	193
		Materials	52
		Parts	150
		Total	$ 879

CONSTRUCTION PROGRAM COSTS

NEWFOUNDLAND

1985-86

STATION NAME	DESIGNATION	CAPITAL	O&M	TOTAL	PROVINCIAL SHARE
Main River at Paradise Pool	FP	$18,394*	$5,683	$24,077	$12,039
Pinch Gut Brook at Outlet of Pinch Gut Lake	P	9,600	-	9,600	9,600
South Brook at Pearl Town Road	P	4,236	-	4,236	4,236
Trout Brook near Bellevue	P	4,236	76	4,312	4,312
Bartletts River near St. Anthony	FP	7,500	849	8,349	4,174
Shoal Harbour River near Shoal Harbour	P	4,536	306	4,842	4,842
TOTALS		$48,502	$6,914	$55,416	$39,203

*Includes cost of manometer ($3,794)

WATER QUANTITY SURVEYS

PROVINCE OF NEWFOUNDLAND

SUMMARY OF ANNUAL COSTS AND PAYMENTS RECEIVED - 1985-86

Hydrometric Surveys

Island

Classification	12 Month Flow (1.0)	12 Month Water Level (0.4)	Miscellaneous Flow (0.5)	Station Units
Federal	12			12.0
Federal-Provincial	30			30.0
Provincial	24			24.0
TOTALS	66			66.0

Average Cost/Station Unit = $255,524/66.0 = $3,872

Provincial Share = 50% of 30.0 x $3,872 + 100% of 24.0 x $3,872 = $151,008

Labrador

Classification	12 Month Flow (1.0)	12 Month Water Level (0.4)	Miscellaneous Flow (0.5)	Station Units
Federal	4			4.0
Federal-Provincial	5			5.0
Provincial		3	1	1.7
Totals	9	3	1	10.7

Average Cost/Station Unit = $103,366/10.7 = $9,660

Provincial Share = 50% of 5.0 x $9,660 + 100% of 1.7 x $9,660 = $ 40,572

Provincial Share of Operational Costs for Hydrometric Surveys on the Island and Labrador $151,008 + 40,572 — $191,580

Provincial Payment Received for Operational Costs for Hydrometric Surveys per Schedule "D" — $195,563

Sediment Surveys

Station Distribution	Stations
Federal-Provincial	2
Provincial	2
Total	4

Average Cost/Station = $8,432/4 = $2,108

Provincial Share of Operational Costs for Sediment Surveys

50% of 2 x $2,108 + 100% of 2 x $2,108	$ 6,324
Provincial Payment Received for Operational Costs for Sediment Surveys per Schedule "D"	$ 7,650

Construction

Total Cost of Constructing 6 New Stations - $ 55,416
(See Page 10 for details of construction costs)

Provincial Share of Construction Costs	$ 39,203
Provincial Payment Received for Construction per Schedule "D"	$ 36,787

Totals

Total Provincial Share for Operations and Construction	
$191,580 + $6,324 + $39,203	$237.107
Total Provincial Payment Received for Operations and Construction per Schedule "D"	
$195,563 + $7,650 + $36,787	$240,000

APPENDIX I

MEMORANDUM OF AGREEMENT

(Sample only)

MEMORANDUM OF AGREEMENT made this twenty-fifth day of February, 1975,

BETWEEN:

The Government of Canada, hereinafter called "Canada", represented by the Minister of the Environment

OF THE FIRST PART

- and -

The government of the Province of Newfoundland and Labrador, hereinafter called the "Province" represented by the Minister responsible for Provincial Affairs and Environment

OF THE SECOND PART

WHEREAS co-operative water quantity surveys have been carried on for many years under various informal federal-provincial agreements in the Provinces of Canada by the Water Survey of Canada of the Department of the Environment, for the purpose of securing co-ordinated and standardized basic data to facilitate resource planning and management in general and the design and implementation irrigation, drainage, flood control, recreation, domestic and industrial water supply and other purposes;

AND WHEREAS the Governor-in-Council has by Order-in-Council No. PC 1975-1/72 dated January 28, 1975, authorized the Minister of Environment to excute this agreement on behalf of Canada, Subject to funds being voted by the Parliament of Canada;

AND WHEREAS the Lieutenant Governor in Council has, by Order-in-Council No. 1412.72 dated December 5, 1974, authorized the Minister responsible for Provincial Affairs and Environment to execute this agreement on behalf of the Province subject to funds being voted by the Legislative Assembly.

NOW THEREFORE this agreement witnesseth that water quantity surveys in the Province and the financing thereof shall be continued and maintained upon the following basis; -

INTRODUCTION

DEFINITIONS

a) ANNUAL PAYMENT – a sum, agreed to by both parties in advance of the fiscal year, which shall represent the costs of operation and construction of water quantity survey stations.

b) CONSTRUCTION – includes the construction of new water quantity survey stations and the maintenance, repair and reconstruction of existing water quantity survey stations.

c) CONSTRUCTION PERSONNEL – includes foremen and labourers on full time duty as well as engineering and technical staff on part time supervisory duty or reconnaissance assignment.

d) FIELD PERSONNEL – includes hydrometric supervisors and field technicians on full time duty as well as engineering and technical staff on temporary assignment.

e) NETWORKS – an original system of gauging stations for collection of water quantity survey data.

f) OPERATING PARTY – either party to this agreement which operates water quantity survey data.

g) PUBLISHED DATA – includes streamflow, water level and sediment data. The data is to be available in publications and computer compatible data files.

h) SEDIMENT STATIONS – any location where surveys are undertaken to collect data on suspended sediment or bed material or bed load data singly or in combination. Water temperature data is to be collected.

i) WATER QUANTITY SURVEY STATIONS – any location where surveys are undertaken to collect streamflow or water level or suspended sediment or bed material or bed load data singly or in combination. Water temperature data may be collected.

ARTICLE I

Each water quantiy survey station presently in operation has been identified according to the designation federal, federal-provincial or provincial. The current designation is given in Schedule A, hereto attached. Schedule A may be revised to include a change in the

designation of a station, the addition of new stations or the deletion of stations as agreed by the Co-ordinating Committee (Article XII) and approved by the officials named in Article XIII.

OPERATIONAL CONSIDERATIONS

ARTICLE II

Canada will construct and operate and pay the cost of construction and the annual cost of operation of water quantity survey stations which have been designated as federal. Where Canada deems it desirable in the interest of efficiency of operation, the Province may be requested to construct and operate some federal water quantity survey stations. If the Province agrees to such arrangements, Canada would in such cases reimburse the Province for the cost of construction and annual cost of operation in accordance with Article VI.

ARTICLE III

Where Canada constructs and operates water quantity survey stations designated as federal-provincial, the Province will reimburse Canada for 50% of the construction costs and 50% of the annual cost of operation. Where the Province constructs and operates these stations, Canada will reimburse the Province for 50% of the construction costs and 50% of the annual cost of operation in accordance with Article VI.

ARTICLE IV

If requested by the Province, Canada will construct and operate water quantity survey stations designated as provincial provided the Province reimburses Canada for 100% of the construction cost and annual cost of operation. If the Province constructs and operates these stations the Province will assume 100% of the cost of construction and operation.

ARTICLE V

a) The operating party shall provide the staff to meet its responsibilities under this agreement.

b) Canada will at its own expense publish data from stations that it operates. Canada will on request at its own expense, publish data from stations operated by the Province providing the data meets national standards.

c) Water quantity surveys under this agreement shall be carried out to national standards in field procedures, equipment and instrumentation, data compilation and will use national guidelines for station designations. Such standards and guidelines shall be developed and maintained by Canada in consultation with all of the Provinces.

d) Canada and the Province shall work together to take advantage of technological advancements which improve the quality of data and the efficiency of standard procedures and to develop methods and techniques to assist in planning water quantity survey networks.

e) Canada at its own expense will provide calibration service for water quantity survey velocity instruments for both parties.

FINANCIAL CONSIDERATIONS

ARTICLE VI

a) Procedures for computing the annual payment are given in Schedule C.

b) The annual payment for 1975–76 is set out in Schedule D. The annual payment for subsequent years shall be determined according to the terms of this agreement and the procedures as set out in Schedule C.

c) Annual operation costs, except for sediment stations, will be computed using average annual water quantity survey station costs and the number of stations to be operated. The average annual water quantity survey station costs shall be recomputed annually according to the items listed in Schedule B.

d) Annual construction costs, except for sediment stations, will be the cost of constructing new water quantity survey sations plus repairs to and major reconstruction of existing water quantity survey stations.

e) The annual operation costs for sediment stations will be the summation of the individual station operation costs.

f) The annual construction costs of sediment stations will be the cost of constructing new sediment stations plus repairs to and major reconstruction of existing stations.

ARTICLE VII

a) The party operating the water quantity survey stations in accordance with Articles II, III and IV, will be responsible for providing and paying the total cost of the water level recording equipment.

b) All costs associated with the purchase, installation and operation of specialized water quantity survey equipment will be paid for by the party or parties requiring the service.

ARTICLE VIII

Canada or the Province, depending on the operating responsibilities, shall submit invoices for one-quarter of the annual payment on July 1st, October 1st, January 1st and March 1st of each fiscal year in accordance with the annual payment set out in Schedule D. Payment is to be made as soon as possible after receipt of each quarterly claim but in no case later than March 31st of each year.

ARTICLE IX

Except as agreed by the parties hereto where both parties have an interest, either operational or financial, the annual net change in the total number of water quantity survey stations, including federal, federal-provincial and provincial, as set out in Schedule A, is not to exceed 15% in any year.

ARTICLE X

Each party constructing or operating a water quantity survey station or stations shall keep complete records of all shareable expenditures made pursuant to this agreement and shall support such expenditures with proper documentation. Canada and the Province upon request shall make these records and documents available to auditors appointed by each other.

CO-OPERATION

ARTICLE XI

There shall be a free exchange of water quantity survey data between Canada and the Province. The party operating the water quantity survey station shall retain originals or a microfilm copy of observations, measurements, recorder charts and computations and these are to be available to the other party on request.

CO-ORDINATION

ARTICLE XII

The officials named in Article XIII shall establish a Co-ordinating Committee representing each of the parties affected by this agreement. The Co-ordinating Committee shall be responsible for:

a) Planning and the continuing review of water quantity survey networks, including addition and deletion of all stations within Provincial boundaries.

b) Determining and reviewing the designation of water quantity survey stations using national guidelines which may from time to time be changed, subject to ratification by Canada and all of the Provinces.

c) Assuring the maintenance of standards in procedures, data compilation and instrumentation.

d) Reviewing annual operating costs and establishing average annual station costs, as per Article VI, for revision of Schedule D.

e) Preparation annually of new Schedules A and D which with the approval of the officials named in Article XIII would apply for the second and each subsequent year of the agreement.

The committee shall meet at least once a year and shall report to the officials named in article XIII.

ADMINISTRATIVE ARRAGEMENTS

ARTICLE XIII

This agreement is to be administered for Canada by the Regional Director of the Inland Waters Directorate located at Halifax, Nova Scotia, and for the Province by the Assistant Deputy Minister, Environment, located at St. John's, Newfoundland.

IMPLEMENTATION

ARTICLE XIV

The parties hereto agree that water quantity surveys will be carried out as indicated in Articles I to XIII inclusive and the Schedules attached hereto.

PERIOD OF AGREEMENT

ARTICLE XV

This agreement shall become effective and binding on the parties upon the first day of April, 1975.

The agreement may be terminated by Canada or the Province on March 31st of any year provided that eighteen (18) months notice in writing is given. The agreement may be revised with the consent of the Governor-in-Council and the Lieutenant Governor-in-Council.

IN WITNESS WHEREOF the Honourable Jeanne Sauve, Minister of Environment has hereunto set her hand on behalf of Canada, and the Honourable W. Gorden Dawe, Minister of Provincial Affairs and Environment has hereunto set his hand on behalf of the Province of Newfoundland and Labrador.

Signed on behalf of Canada)
by the Honourable Jeanne Sauve,)
Minister of Environment)
)
)
)
)
IN THE PRESENCE OF)
)
)
)
)
Signed on behalf of the Province of)
Newfoundland and Labrador by the)
Honourable W. Gorden Dawe, Minister)
of Provincial Affairs and Environment)
)
)
)
)
IN THE PRESENCE OF)
)
)
)
)

APPENDIX II

SCHEDULE A
WATER QUANTITY AND SEDIMENT SURVEY STATIONS

HYDEX RETRIEVAL - RESPONSIBILITY CLASSIFICATION OF ACTIVE GAUGING STATIONS [illegible]
COST, ARR.- FEDERAL 1, FEDERAL DEPARTMENTAL PROGRAMS
OPERATED BY WATER SURVEY OF CANADA

02YD001	D	490055	545113	4400	ORC	NAT	GANDER RIVER AT BIG CHUTE
02ZM006	D	473906	525014	3.90	ORC	NAT	NORTHEAST POND RIVER AT NORTHEAST POND
02ZK001	D	471329	533406	285	ORC	NAT	ROCKY RIVER NEAR COLINET

WATER SURVEY OF CANADA
APR 01 1985 PAGE 21
OTTAWA, ONT.

HYDEX RETRIEVAL - RESPONSIBILITY CLASSIFICATION OF ACTIVE GAUGING STATIONS FOR [illegible]
COST, ARR., FEDERAL 2, INTERPROVINCIAL WATERS
OPERATED BY WATER SURVEY OF CANADA

02XA003 D	521342	611921	4540 ORC	NAT	RMT	LITTLE MECATINA RIVER ABOVE LAC FOURMONT
02XA004 D	520950	609331	2060 ORC	NAT	RMT	RIVIERE JOIR NEAR PROVINCIAL BOUNDARY

WATER SURVEY OF CANADA
APR 01 1985 PAGE 22
OTTAWA, ONT.

HYDEX RETRIEVAL - RESPONSIBILITY CLASSIFICATION OF ACTIVE GAUGING STATIONS FOR NEWFOUNDLAND
COST, ARR.- FEDERAL 4, NATIONAL WATER QUANTITY INVENTORY
OPERATED BY WATER SURVEY OF CANADA

03OE001	D	531452	604721	92500	ORC	REG71	RMT	CHURCHILL RIVER ABOVE UPPER MUSKRAT FALLS
03QC001	D	533203	572942	10900	ORC	NAT	RMT	EAGLE RIVER ABOVE FALLS
02YD011	D	485027	561633		ORC	REG		EXPLOITS RIVER BELOW NOEL PAUL'S BROOK
02YD005	D	485527	553929	8640	ORC	REG		EXPLOITS RIVER BELOW STONY BROOK
02YJ001	D	483431	582148	640	ORC	NAT		HARRYS RIVER BELOW HIGHWAY BRIDGE
02YL003	D	485902	574541	7960	ORC	REG		HUMBER RIVER AT HUMBER VILLAGE BRIDGE
02ZB001	D	473650	590033	205	ORC	NAT		ISLE AUX MORTS RIVER BELOW HIGHWAY BRIDGE
02YD010	D	485827	560022		ORC	NAT		JUNCTION BROOK NEAR BADGER
02YD002	D	505544	560644	200	ORC	NAT		NORTHEAST BROOK NEAR ROBBICHTON
02YS003	D	483625	535850	36.2	ORC	NAT		SOUTHWEST BROOK AT TERRA NOVA NATIONAL PARK
02YC001	D	503622	570904	624	ORC	NAT		TORRENT RIVER AT BRISTOL'S POOL

HYDEX RETRIEVAL - RESPONSIBILITY CLASSIFICATION OF ACTIVE GAUGING STATIONS FOR NEWFOUNDLAND
COST. ARR.- FEDERAL-PROVINCIAL 3. REG. WATER QUANTITY INVENT.
OPERATED BY WATER SURVEY OF CANADA

03OL002	D	523857	565217	2310	QRC	NAT	RMT	ALEXIS RIVER NEAR PORT HOPE SIMPSON
02ZF001	D	474448	552630	1170	QRC	NAT		BAY DU NORD RIVER AT BIG FALLS
02YJ002	D	483256	583411	120	QRC	NAT		BLANCHE BROOK NEAR STEPHENVILLE
02YH001	D	493506	575434		QRC	NAT		BOTTOM CREEK NEAR ROCKY HARBOUR
02ZH002	D	475507	535659	43.5	QRC	NAT		COME BY CHANCE RIVER NEAR GODDIES
02ZG001	D	471250	551945	205	QRC	NAT		GARNISH RIVER NEAR GARNISH
02ZC002	D	475137	524400	230	QRC	NAT	RMT	GRANDY BROOK BELOW TOP POND BROOK
02YD008	D	484938	553150	823	QRC	NAT		GREAT RATTLING BROOK ABOVE TOTE RIVER CONFLUENCE
02YE001	D	500937	573445	95.7	QRC	NAT		GREAVETT BROOK ABOVE PORTLAND CREEK POND
02ZD002	D	474435	565605	1340	QRC	NAT		GREY RIVER NEAR GREY RIVER
02ZA002	D	480633	584704	72.0	QRC	NAT		HIGHLANDS RIVER AT TRANS-CANADA HIGHWAY
02YK003	D	490224	585300	554	QRC	NAT		INDIAN BAY BROOK NEAR NORTHWEST ARM
02YM001	D	493043	560645	924	QRC	NAT		INDIAN BROOK AT INDIAN FALLS
03NG001	D	543725	605838	8930	QRC	NAT	RMT	KANAIRIKTOK RIVER BELOW SNEGAMOOK LAKE
02ZA001	D	482644	582355	343	QRC	NAT		LITTLE BARACHOIS BROOK NEAR ST. GEORGE'S
02YK001	D	484828	581328	267	QRC	NAT		MIDDLE BROOK NEAR GAMBO
03OE003	D	523653	611111	2330	QRC	NAT	RMT	MINIPI RIVER BELOW MINIPI LAKE
03PB002	D	540754	612545	4480	QRC	NAT	RMT	NASKAUPI RIVER BELOW NASKAUPI LAKE
02ZL002	D	471626	535027	89.6	QRC	NAT		NORTHEAST RIVER NEAR PLACENTIA
02ZN001	D	465108	531811	53.3	QRC	NAT		NORTHWEST BROOK AT NORTHWEST POND
02ID004	D	484607	550452	2150	QRC	NAT		NORTHWEST GANDER RIVER NEAR GANDER LAKE
02ZH001	D	475649	541708	764	QRC	NAT		PIPERS HOLE RIVER AT MOTHERS BROOK
02YE002	D	492335	540625	495	QRC	NAT		RAGGED HARBOUR RIVER NEAR MUSGRAVE HARBOUR
02ZG003	D	465229	554639	115	QRC	NAT		SALMONIER RIVER NEAR LAMALINE
02ZM999	D	465050	525827	53.6	QRC	NAT		SEAL COVE BROOK NEAR CAPPAHAYDEN
02ZJ001	D	482244	534036	67.4	QRC	NAT		SOUTHERN BAY RIVER NEAR SOUTHERN BAY
02ZL003	D	474843	530915	10.9	QRC	NAT		SPOUT COVE BROOK NEAR SPOUT COVE
02YA001	D	510818	564732	306	QRC	NAT		STE. GENEVIEVE RIVER NEAR FORRESTERS POINT

02YS005	D	483943	540105		ORC	NAT		TERRA NOVA RIVER NEAR GLOVERTOWN
02ZG002	D	470238	551554	165	ORC	NAT		TIDES BROOK BELOW FRESHWATER POND
03NF001	D	551400	611257	2570	ORC	NAT	RMT	UGJONTOK RIVER BELOW HARP LAKE
02YQ003	D	491402	550358		ORC	NAT		UNKNOWN RIVER AT LEWISPORT
02YL001	D	491426	572145	2110	ORC	NAT		UPPER HUMBER RIVER NEAR REIDVILLE
02ZM018	D	473525	524128	13.3	ORC	NAT		VIRGINIA RIVER AT PLEASANTVILLE
02ZM008	D	473142	524434	52.7	ORC	NAT		WATERFORD RIVER AT KILBRIDE

HYDEX RETRIEVAL - RESPONSIBILITY CLASSIFICATION OF ACTIVE GAUGING STATIONS FOR NEWFOUNDLAND
COST. ARR.- PROVINCIAL 1. PROVINCIAL DEPARTMENTAL PROGRAMS
OPERATED BY WATER SURVEY OF CANADA

02ZJ003	D	480234	530500		ORC		BIG BROOK AT LEAD COVE
02YK008	D	491559	570614		ORC	NAT	BOOT BROOK AT TRANS-CANADA HIGHWAY
03OE003	D	531457	604608		HRC	REG	RMT CHURCHILL RIVER AT FOOT OF LOWER MUSKRAT FALLS
03OE004	D	525821	612615		HRC	REG	RMT CHURCHILL RIVER BELOW GULL ISLAND RAPIDS
03OE005	D	531439	604624		HRC	REG	RMT CHURCHILL RIVER BETWEEN UPPER AND LOWER MUSKRAT FALLS
02YK007	D	490650	572209	112	ORC	NAT	GLIDE BROOK BELOW GLIDE LAKE
02ZM020	D	472348	524500		ORC	NAT	LEARY BROOK AT PRINCE PHILIP DRIVE
02ZM017	D	472343	524547	15.3	ORC	NAT	LEARY BROOK AT ST. JOHN'S
02YO007	D	485642	554942	88.3	ORC	NAT	LEECH BROOK NEAR GRAND FALLS
02YL002	D	483720	575600	470	ORC	NAT	LEWASEECHJEECH BROOK AT LITTLE GRAND LAKE
02ZK003	D	471053	540227	37.2	ORC	NAT	LITTLE BARASWAY RIVER NEAR PLACENTIA
02ZA003	D	474919	591140	139	ORC	NAT	LITTLE CODROY RIVER NEAR DOYLES
02ZK004	D	470525	534048	104	ORC	NAT	LITTLE SALMONIER RIVER NEAR NORTH HARBOUR
02YN002	D	481432	574941	469	ORC	NAT	LLOYDS RIVER BELOW KING GEORGE IV LAKE
02XB002	D	514527	562705	35.5	ORS	NAT	NORTHERN BROOK NEAR RED BAY
02YO006	D	490621	552458	177	ORC	NAT	PETERS RIVER NEAR DOTWOOD
02ZG004	D	472262	545118	42.7	ORC	NAT	RATTLE BROOK NEAR BOAT HARBOUR
02YL005	D	490731	580419		ORC	NAT	RATTLER BROOK NEAR MCIVERS
02ZJ002	D	482345	531806	73.6	ORC	NAT	SALMON COVE RIVER NEAR CHAMPNEYS
02ZL004	D	473502	531929	28.9	ORC	NAT	SHEARSTOWN BROOK AT SHEARSTOWN
02YP005	D	492011	563956	391	ORC	NAT	SHEFFIELD RIVER NEAR TRANS CANADA HIGHWAY
02YP001	D	492218	554844	63.8	ORC	NAT	RMT SHOAL ARM BROOK NEAR BADGER BAY
02YL004	D	490043	574647	58.5	ORC	NAT	SOUTH BROOK AT SOUTH BROOK
02ZM016	D	472141	530702	17.3	ORC	NAT	SOUTH RIVER NEAR HOLYROOD
02YM003	D	495237	561422	93.2	ORC	NAT	SOUTH WEST BROOK NEAR BAIE VERTE
02ZN002	D	464232	532924		ORC	NAT	ST. SHOTTS RIVER NEAR INDIAN BAY
02ZM019	D	473696	524206		ORC	NAT	VIRGINA RIVER AT CARTWRIGHT PLACE
02ZM018	D	473139	524825	14.6	ORC	NAT	WATERFORD RIVER AT MOUNT PEARL

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HYDEX RETRIEVAL - RESPONSIBILITY CLASSIFICATION OF ACTIVE GAUGING STATIONS FOR NEWFOUNDLAND
COST, ARR, OTHER
OPERATED BY PROVINCE

03DC006	D	534620	652347	21400	QPC	REG73 C120	ATIKONAK RIVER AT GABBRO LAKE
03DD006	D	532653	644609		QPC	REG64 C120	ATIKONAK RIVER AT OSSAKMANUAN LAKE CONTROL STRUCTURE
03DD005	D	533210	635751	69200	QPC	REG71 C120	CHURCHILL RIVER AT CHURCHILL FALLS POWERHOUSE
02ZE003	D	475900	555112	5910	QPC	REG67 C425	SALMON RIVER AT BAY D'ESPOIR POWERHOUSE

03OA001	D	542718	663730	19000	OPC	REG	C355	ASHUANIPI RIVER AT MENIHEK RAPIDS
02YL002	D	485526	575411	127	OPC	REG	C045	CORNER BROOK AT WATSONS BROOK POWERHOUSE
02YO001	D	485550	554907	8460	OPC	REG	C510	EXPLOITS RIVER AT GRAND FALLS
02YK006	D	490500	571213	651	OPC	REG81	C425	HINDS BROOK AT HINDS BROOK POWER HOUSE
02YK001	D	490943	572528	5020	OPC	REG	C045	HUMBER RIVER AT GRAND LAKE OUTLET
02ZM003	D	471458	525320	112	OPC	REG	C435	MOBILE RIVER AT MOBILE FIRST POND
02ZM001	D	472727	524347	134	OPC	REG	C435	PETTY HARBOUR RIVER AT SECOND POND
02ZM002	D	471750	525100	117	OPC	REG	C435	PIERRES BROOK AT GULL POND
02YO003	D	490412	551712	378	OPC	REG	C435	RATTLING BROOK AT RATTLING BROOK POWERHOUSE
02YO004	D	485318	554914	508	OPC	REG	C435	SANDY BROOK AT SANDY BROOK POWERHOUSE

APPENDIX III

NATIONAL GUIDELINES FOR DESIGNATING WATER QUANTITY SURVEY GAUGING STATIONS

October 20, 1982

NATIONAL GUIDELINES FOR DESIGNATING WATER QUANTITY SURVEY STATIONS

These national guidelines of the Federal-Provincial Memoranda of Agreement for Water Quantity Surveys have been prepared by Canada in consultation with the Provinces for the purpose of designating federal, federal-provincial and provincial water quantity survey stations. In compliance with the agreements, the assignment and review of station designations is the responsibility of each Co-ordinating Committee.

The intent of these guidelines is to provide a uniform and consistent manner for designating water quantity survey stations throughout Canada. In these guidelines, "water quantity survey stations" have the same definition as in the Memoranda of Agreement and include water level, streamflow and sediment survey stations. The word "station" in these guidelines means "water quantity survey stations". Where not otherwise specified, the word "Province" means "Province" or "Territory". The designation of each sediment station can be considered separately from the corresponding water quantity survey station designation.

FEDERAL STATIONS

These are stations that support programs of primary interest to the Government of Canada. These stations are funded 100 per cent by Canada in accordance with Article II and the procedures described in Schedules B, C and D (F for the Yukon) (and Schedules E, D, and F for Quebec) of the Memoranda of Agreement.

1. Federal Department Programs

These are stations required under statutory obligations that have developed in response to federal legislation and priorities, and as a result of programs of various federal government departments or agencies to provide quantity information on inland waters. These include stations operated in support of specific federal works, benchmark basins, studies or investigations, research projects, and to meet navigational requirements and management responsibilities. A station may be so designated where Canada has formally accepted responsibility for the continued operation of the station under an implementation agreement.

2. Interprovincial Rivers

These are stations required for monitoring of waters flowing across or forming part of provincial or territorial boundaries where federal responsibility has been established by an agreement or where justified by an inter-jurisdictional concern.

3. International Waters

These are stations associated with federal responsibilities arising from international agreements, treaties, orders or studies. These include:

a) Stations specifically named under the Boundary Waters Treaty and those approved officially as "International Gauging Stations".

b) Stations specifically stipulated under IJC orders, or required to support such orders; to provide for control of waters crossing or forming part of the international boundary and for IJC related study, surveillance, flow regulation or appointment purposes. Such stations may also be required for similar studies carried out under unilateral or bilateral mechanisms and undertaken in anticipation of the need for formal orders.

c) Stations related to international treaties and agreements which involve waters crossing or forming part of the international boundary and which specifically stipulate the reaches of streams required to be monitored or special arrangements that need to be made to meet water quantity survey needs.

d) Stations on streams flowing across or forming part of the international boundary for which Canada has determined that monitoring is required for water management purposes.

4. National Water Quantity Inventory

These are stations that provide information for a national inventory of surface waters. They consist of those stations required to determine water quantity trends in the major drainage basins in Canada that serve to provide an assessment of the total surface water resources and to measure significant discharge to the oceans.

FEDERAL-PROVINCIAL AND/OR FEDERAL-TERRITORIAL STATIONS

These are stations that support programs of joint interest to Canada and the Province. The construction and operation of these stations are funded in accordance with Article III and procedures described in Schedules B, C and D (F for the Yukon) (and Schedules E, D, and F for Quebec) of the Memoranda of Agreement.

1. Federal-Provincial Agreements

These are stations where joint federal and provincial (or territorial) responsibility is established under the terms and conditions of an agreement between Canada and one or more Province or Territories.

The joint funding arrangements for any particular agreement must be taken into consideration before designating a station in order to ensure the intended division of financial responsibility. Following the completion of a federal-provincial water study, a station may be designated in this category only if its continuation would be in the joint interest of Canada and the Province.

2. River Basin Management

These are stations where both Canada and the Province have stated an interest in the need for information to support the management of the water resources of a river basin.

3. Regional Water Quantity Inventory

These are stations that provide an assessment of the quantity of water resources available in distinct hydrologic zones within each Province through representative sampling taking into consideration climatic variability, geographic and geologic differences, levels of population and development, basin size, streamflow regime, relationship to major groundwater resources and length of record.

PROVINCIAL AND/OR TERRITORIAL STATIONS

These are stations that support programs of primary interest to a Province. They are funded 100 per cent by the Province in accordance with Article IV and procedures described in Schedules B, C and D (F for the Yukon) (and Schedules E, D, and F for Quebec) of the Memoranda of Agreement.

1. Provincial Department Programs

These are stations required strictly for provincial programs where water quantity information on inland waters is needed.

2. Specific Purpose Monitoring Requirements

These are stations established as a result of specific requests of provincial/territorial agencies, municipalities, or non-government organizations. All such requests shall be referred to the Province for screening and funding arrangements before being presented to the applicable Co-ordinating Committee.

CRITERIA FOR DESIGNATING STATIONS

UNDER GUIDELINE FEDERAL 4

NATIONAL WATER QUANTITY INVENTORY

1. Stations established on the main stem of large rivers discharging directly to the oceans as defined in the Hydrologic Atlas of Canada as those whose mean annual flow at the outlet of the river basin exceeds 400 m^3/sec.

2. Stations established on rivers for the purpose of determining water quantity trends or those located on rivers contributing discharge to the oceans whose mean annual flow at the mouth of the river as at least 85 m^3/sec.

3. Stations established for the purposes defined above whose drainage areas are greater than 200 km^2.

4. Stations of drainage area less than 200 km^2 may be established on rivers to determine discharge to the ocean and/or to assess the total water resource available in major hydrologic and climatic zones which are defined as follows:

   Island Provinces – P.E.I. and Newfoundland
   Islands forming integral parts of Provinces/Territories
   Major Pininsulas
   Distinctly identified hydrologic and/or climatic zones.

   The density of such stations shall be limited to those determined by official scientifically conducted station network analysis as required to determine the desired hydrologic parameters of the major geographical zones within the Province, Territory or Region.

SCHEDULE B

ANNUAL PAYMENTS – ITEMS TO BE INCLUDED

SCHEDULE B

ANNUAL PAYMENTS - ITEMS TO BE INCLUDED

The items to be included in computing the annual payments of water quantity survey stations are:

I. OPERATIONAL COSTS WATER QUANTITY SURVEY STATIONS EXCLUDING SEDIMENT

a) Salaries and overtime of field personnel and casual labour;

b) Field travel expenses, board and lodging costs for field personnel;

c) The computer costs associated with computing daily mean hydrometric data;

d) Observer pay;

e) Depreciation, operation and maintenance of vehicles and boats;

f) Maintenance of gauging station structures including material and labour for minor repairs;

g) Maintenance and depreciation of all field equipment and instruments (except as noted in Article VII of this agreement);

h) Fuels such as propane for heating recorder installations and gas such as nitrogen for operating pressure sensing equipment, electricity charges;

i) Rental of aircraft, vehicles, boats, etc., supplied by either party or chartered;

j) The annual cost of land leases;

k) Services, e.g. cost of establishing gas caches, operation of line cabins, etc.

II. OPERATIONAL COST SEDIMENT STATIONS

All items in I OPERATIONAL COST plus:

l) The computer costs associated with computing daily mean sediment data;

m) Cost of analysis of sediment samples.

SCHEDULE B (cont'd)

III NEW CONSTRUCTION REPAIR AND MAJOR RECONSTRUCTION COSTS FOR WATER QUANTITY SURVEY STATIONS:

a) Salaries and overtime of construction personnel;

b) Field travel expenses, board and lodging costs of construction personnel;

c) Depreciation, operation and maintenance of vehicles;

d) Construction materials;

e) Maintenance, depreciation and operation of construction equipment;

f) Rental of aircraft, vehicles, boats, construction equipment, etc. supplied by either party or chartered;

g) Land acquisition costs including legal survey costs;

h) Construction contract payments.

APPENDIX V

SCHEDULE C

PROCEDURES FOR PREPARATION OF ANNUAL PAYMENTS

SCHEDULE C

PROCEDURES FOR PREPARATION OF ANNUAL PAYMENTS

a) The annual payment is composed of two parts, the annual operating costs and the costs of construction for streamflow and water level installations and sediment installations.

b) The annual payment shall be computed for each year the agreement is in effect.

c) Cost data to be used as a basis for computing each annual payment will be the cost data from the latest available full fiscal year.

d) A cost index factor is to be used in computing the annual payment for the year in question commensurate with sound engineering practice.

e) The average annual unit costs for operating water quantity survey stations listed in Schedule A but not including sediment stations will be determined from the cost data of c) above and where necessary, because of significant differences in transportation costs, these average annual unit costs will be computed for more than one area or condition of operation.

f) The total annual operation cost of the water quantity survey stations listed in Schedule A but not including sediment stations will be the summation of the appropriate average annual unit cost for each station multiplied by the cost index factor as determined in item d) above.

g) The total annual operation cost of the sediment stations listed in Schedule A will be the summation of the annual operating cost for each station multiplied by the cost index factor as determined in item d) above.

h) The construction cost to be apportioned in accordance with Articles II, III and IV will be the summation of the construction cost for each new, or reconstructed water quantity survey station. The entire cost of construction is to be included in the annual payment. Construction costs are to be determined using data from reconnaissance surveys, standard plans, etc. and incorporating the cost index factor from item d) above.

i) In cases where there is a significant deviation between the cost determined in (f), (g) and (h) and actual costs because of the cost index factor used, or changes in the construction program due to unforseen circumstances such as flooding, an adjustment may be made in the final quarterly payment (March 1st) or the next fiscal year to more accurately reflect the cost shares of the parties to this agreement.

APPENDIX VI

PROCEDURE FOR APPLICATION OF SCHEDULES B AND C TO THE ATLANTIC REGION AGREEMENTS

PROCEDURE FOR

APPLICATION OF SCHEDULES B AND C TO THE

ATLANTIC REGION AGREEMENTS

The procedures used by Water Resources Branch, Atlantic Region, to determine operational costs under the Water Quantity Survey Cost Sharing Agreement is based on the financial system called AFMAS. Under this system, costs are divided into various object groups (01 to 25) and coded accordingly, by province.

SCHEDULE B

I. OPERATIONAL COSTS - WATER QUANTITY SURVEY STATIONS EXCLUDING SEDIMENT

Object Groups 01, 02, 03, 04, 05 - Salaries and Overtime

This includes salaries and overtime payments of field technicians and supervisors. Following is a breakdown per province for the Atlantic Region.

New Brunswick	- Two Hydrometric Supervisors Five Hydrometric Technicians
Newfoundland	- One-half of Area Head One Hydrometric Supervisor Five Hydrometric Technicians
Nova Scotia	- Three-quarters of Hydrometric Supervisor Three and one-quarter Hydrometric Technicians
Prince Edward Island	- One-quarter of Hydrometric Supervisor One-half of Hydrometric Technician

Object Group 07 - Travel

This group of costs includes field travel expenses for field personnel and other employees required for hydrometric survey work in the respective province.

Object Group 08 - Transportation

Included under this object group are costs for the transportation of goods and materials by truck, air, rail, and water.

Object Group 09 - Telecommunications

Expenses included within group are telephone services related to hydrometric operations.

Object Group 11 - Professional Services

This object group includes salaries of gauge readers at hydrometric stations.

Object Group 15 - Other Services

This group includes costs associated with graphic services, photographic services, brokerage fees, storage, printing, and Department of Supply and Services' service charges.

Object Group 16 - Rentals

(i) Includes rental of aircraft, vehicles, boats and light machinery used for maintenance of gauging facilities.

(ii) Annual cost of land leases for the establishment of or access to gauging stations (includes recorder shelters and cableways).

Object Group 17 - Repairs to Equipment

Repair and upkeep of such items as road motor vehicles, instrumentation, electrical equipment, survey equipment, snowmobiles, motor boats, ATV's, trailers, etc.

Object Group 18 - Building and Structure Repairs

This object group deals with all work done under contract toward the repair and upkeep of gauging facilities including shelter, stilling wells, cableways, weirs, flumes, bridges, stairways, access roads, etc.

Object Group 19 - Public Utility Services

Electrical services obtained through a public utility company.

Object Group 20 - Purchased Materials

Gasoline and oil for road motor vehicles is the major cost item in this cost group. Other costs include gas and oil for other motorized equipment, building materials, nitrogen for manometer stations, propane, working clothes and footwear, recorder charts, etc.

Object Group 21 - Parts and Consumable Tools

Includes items such as plumbing equipment and fittings, electrical equipment and fittings, batteries, scientific equipment, heating equipment, batteries, measuring equipment, safety equipment, hand tools, boats, rubber tires, etc.

Data Processing Costs

Up to and including 1983-84, all data processing was done using the main frame computer facilities located at Bedford Institute of Oceanography. For 1983-84 the data processing cost amounted to $25,000.

During 1983-84, a PDP 11/44 mini computer system was installed at the offices of Water Resources Branch, Dartmouth. For 1984--85 the new facility was completely operational.

In accordance with "Compendium of Practices, Interpretations and Administrative Procedures used by Co-ordinating Committees in Implementing the Water Quantity Survey Agreements", the annual computing cost would include the capital expenditure for the mini computer system, the annual operating cost (AOC) and the annual maintenance cost (AMC). The capital is recovered over a ten year peiod through an imputed rental charge (IRC), determined by amortizing the capital expenditure over a period of ten years. Therefore, the evolving formula would be:

Total Shareable Annual Computing Cost = IRC + AOC + AMC

If the Total Shareable Annual Computing Cost exceeds the cost for the base year, 1983-84, multiplied by a national cost increase factor, then the latter cost will be used.

In the Atlantic Region the Total Shareable Annual Computing Cost is proportioned among the four cost sharing agreements by the number of gauging station records processed.

Depreciation of Vehicles

Road motor vehicles in the Atlantic Region are now depreciated in accordance to the "Compendium of Practices, Interpretations and Administrative Procedures Used by Co-ordinating Committees in Implementing the Water Quantity Survey Agreements". By this Compendium Report the Multi-Purpose Vehicles and Vans used in the Atlantic Region are depreciated over a term of six years from the original capital purchase cost.

To calculate this depreciation, the actual capital cost of the vehicle is divided by 72 months to give a monthly depreciation. The monthly depreciation is multiplied by the actual number of months that a vehicle served in a particular province, to give the annual depreciation for the vehicle.

Depreciation of Field Equipment and Instrumentation

Field equipment and instrumentation are depreciated at a rate of 10% of the current value of the cost-shareable inventory as determined once a year. Normally, only items acquired through capital purchases are included on the cost-shareable inventory.

II. THE OPERATIONAL COST OF SEDIMENT STATIONS

All cost items included in Section I except salaries, overtime and depreciation of vehicles, as they relate to Sediment Surveys, are included in the operational costs for the Sediment Network. Also included is the cost of laboratory analysis for suspended concentration and particle size distribution.

III. CONSTRUCTION AND MAJOR REPAIR COSTS FOR WATER QUANTITY SURVEY STATIONS

Once a major repair or new construction project has been identified, it is assigned a cost code to which all related costs are assigned. Much of this work is contracted out with the initial reconnaissance and the general supervision on-site provided by Water Survey of Canada.

If contracted out, the total cost is comprised of -

- Overtime of Water Survey of Canada supervisory personnel.
- Field travel expenses, board and lodging costs of supervisory personnel provided by Water Survey of Canada.
- If a pressure installation, the cost of the manometer and pressure unit accessory equipment such as gas and cylinders.
  The water level recorder is not charged.
- Charter aircraft.
- Land acquisition costs if required.
- Construction contract payments -

  Department of Supply and Services contract procedures are followed.

If constructed by Water Survey of Canada personnel, costs include:

- Overtime of Water Survey of Canada supervisory personnel.
- Field travel expenses, board and lodging costs of Water Survey of Canada staff. Expenses associated with reconnaissance and construction.
- If a pressure installation, the cost of the pressure unit and accessory equipment such as gas and cylinders.
- Construction materials – All items required for the construction of stilling wells, shelters, cableways, controls and survival shelters.
- Rental of aircraft, vehicles, boats, construction equipment associated with the project.
- Land acquisition costs if required.
- Construction contract payments – The services of construction equipment operators for backhoe and bulldozer are usually involved. These are arranged and paid for through Department of Supply and Services.

SCHEDULE C

PROCEDURES FOR PREPARATION OF ANNUAL PAYMENTS

a) The annual payment is composed of two parts - the annual operating costs and the costs of construction for streamflow and water level installations and sediment installations.

The annual operating costs are the estimated costs for operating streamflow and water level stations and sediment stations. The sediment station operational costs include the cost of sample analysis.

The costs of construction are the anticipated costs involved in the construction program.

b) The annual payment shall be computed for each year the Agreement is in effect.

In the annual report tables are included which provide detail on 1) the determination of the average cost of operating hydrometric and sediment stations and 2) the construction program.

c) Cost data to be used as a basis for computing each annual payment will be the cost data from the latest available full fiscal year.

The Department of Supply and Services AFMAS accounting System provides detailed information on each of three authority codes - salaries, operations, and capital. Study codes identify the major divisions of expenditure and the areas (Provinces) in which they are made, i.e., hydrometric surveys, sediment surveys, hydrometric construction or sediment construction in New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland. Line objects provide summarized information on individual types of expenditures.

d) A cost index factor is to be used in computing the annual payment for the year in question commensurate with sound engineering practice.

The cost index factor is determined by examining the change in costs in the latest complete fiscal year from the previous year. For salaries, the percentages granted by the latest collective agreements are used as a guide. Various percentages are used for operating items. Those used may vary from the actual percentage change from year to year to the annual cost of living index. In any case the cost index factors selected are such that costs for the forecast year will be as close to the actual costs as possible.

e) The average annual unit costs for operating water quantity survey stations listed in Schedule A, but not including sediment stations will be determined from the cost data of (c) above and where necessary, because of significant differences in transportation costs, these average annual unit costs will be computed for more than one area or condition of operation.

In the Atlantic Region the average cost of operating hydrometric stations and sediment stations is computed separately for each of the Provinces. The average cost for the Province of Newfoundland is computed separately for the Island and Labrador.

In the Atlantic Region, weighting factors are only used for the Province of Newfoundland.

f) The total annual operative cost of the water quantity survey stations listed in Schedule A, but not including sediment stations will be the summation of the appropriate average annual unit cost for each station multiplied by the cost index factor as determined in (d) above.

The cost index factors derived in (d) are applied to the total costs of individual items of Schedule B, to obtain the estimate of annual operation cost for the forecast year.

g) The total annual operation cost of the sediment stations listed in Schedule A will be the summation of the annual operating costs for each station multiplied by the cost index factor as determined in item (d) above.

The cost of sediment stations is determined in a similar manner as hydrometric stations but takes into account the additional cost of analyses and excludes salaries.

h) The construction cost to be apportioned in accordance with Articles II, III and IV will be the summation of the construction cost for each new, or reconstructured water quantity survey station. The entire cost of construction is to be included in the annual payment. Construction costs are to be determined using data from reconnaissance surveys, standard plans, etc., and incorporating the cost index factor, item (d) above.

The construction costs are the summation of the forecasted construction program including travel for reconnaissance and supervision, inspections, materials, contracts and equipment rentals. The magnitude of the program in any one year is determined from the network requirements and funds available.

i) In cases where there is a significant deviation between the cost determined in (f), (g) and (h) and actual costs because of the cost index factor used, or changes in the construction program due to unforeseen circumstances, such as, flooding, an adjustment may be made in the final quarterly payment (March 1st) or the next fiscal year to more accurately reflect the cost shares of the parties to this agreement.

In the Atlantic Region there have not been any "adjustments" through the first nine years of the Agreements, even though there have been "significant deviations".

APPENDIX VII

SCHEDULE D

SCHEDULE D

This schedule provides a summary of the annual payment. The details of the calculations for operation and construction are available and have been jointly reviewed by officers of each party.

ANNUAL PAYMENT FOR 1985-86 TO BE PAID TO THE RECEIVER GENERAL FOR CANADA BY THE PROVINCE OF NEWFOUNDLAND.

	Operation	Construction	Total
a) Streamflow and water level installations	$195,563	$36,787	$232,350
b) Sediment installations	7,650	--	7,650
		ANNUAL PAYMENT	$240,000

D. G. Jeans
Assistant Deputy Minister
Department of Environment

Administrator for Province

D. L. Egar
Regional Director, Atlantic
Inland Waters Directorate

Administrator for Canada

APPENDIX VIII

TABLES 1 TO 6

GAUGING STATIONS

AND

SHAREABLE COSTS DATA

Province/Territory: Newfoundland

TABLE 1
WATER QUANTITY SURVEYS
GAUGING STATION DATA FOR 1985-86

No. of Stations			Changes during 1985-86		Stn. Designation April 1, 85			
April 1 84	April 1 85	Change	Added	Discontinued	Fed.	F P	Prov.	Contrib.
92	93	1	6	0	* 16	* 35 (2)	* 28 (2)	14

* Bracket Sediment Stations

TABLE 2
WATER QUANTITY SURVEYS
COMPARATIVE GAUGING STATION DATA April 1/75 - April 1, 1985

Federal Stations			F P Stations			Provincial Stations			Total Stations		
Apr 1 75	Apr 1 85	Chge	Apr 1 75	Apr 1 85	Chge	Apr 1 75	Apr 1 85	Chge	Apr 1/75	Apr 1/ 85	Chge
14	16	2	7	35	28	9	28	19	30	79	49

TABLE 3
WATER QUANTITY SURVEYS
DETAILED GAUGING STATION DATA 1985-86

F-1	F-2	F-3	F-4	Total F	FP-1	FP-2	FP-3	Total F/P	P-1	P-2	Total P	Contributed	Total-All
3	2	0	11	16	0	0	35 (2)	35	28 (2)	0	28	14	93 (4)

Bracket Sediment Stations in all catagories

Province: Newfoundland

TABLE 4
WATER QUANTITY SURVEYS
TOTAL PROGRAM COSTS & SHAREABLE COSTS FOR 1985-86
(× $1000)

Total Program Costs					Shareable Costs						
P/Yrs	Sal.	Oper.	Cap.	Total	P/Yrs	Sal.	Oper.	Const.	Total	F Share	P Share
12.0	387.5	190.7	186.9	765.1	6.5	195.8	171.5	55.4	422.7	185.6	237.1

TABLE 5
WATER QUANTITY SURVEYS
SUMMARY OF SCHEDULES D/F - 1985-86

Streamflow & Water Level		Sediment		Total
Operation	Construction	Operation	Construction	
195,563	36,787	7,650	0	$240,000

TABLE 6
WATER QUANTITY SURVEYS
COMPARISON - SCHEDULED & ACTUAL COSTS FOR 1985-86
(Dollars)

Salary & Operations		Construction		Total			Annual Payment Received	Received Minus Actual
Sch. D/F	Actual Cost	Sch. D/F	Actual Cost	Sch. D/F	Actual Cost	Difference		
203,213	197,904	36,787	39,203	240,000	237,107	2,893	240,000	+2,893

APPENDIX IX

SUMMARY OF ANNUAL COSTS AND PAYMENTS

1975–76 TO 1985–86

SUMMARY OF ANNUAL COSTS AND PAYMENTS

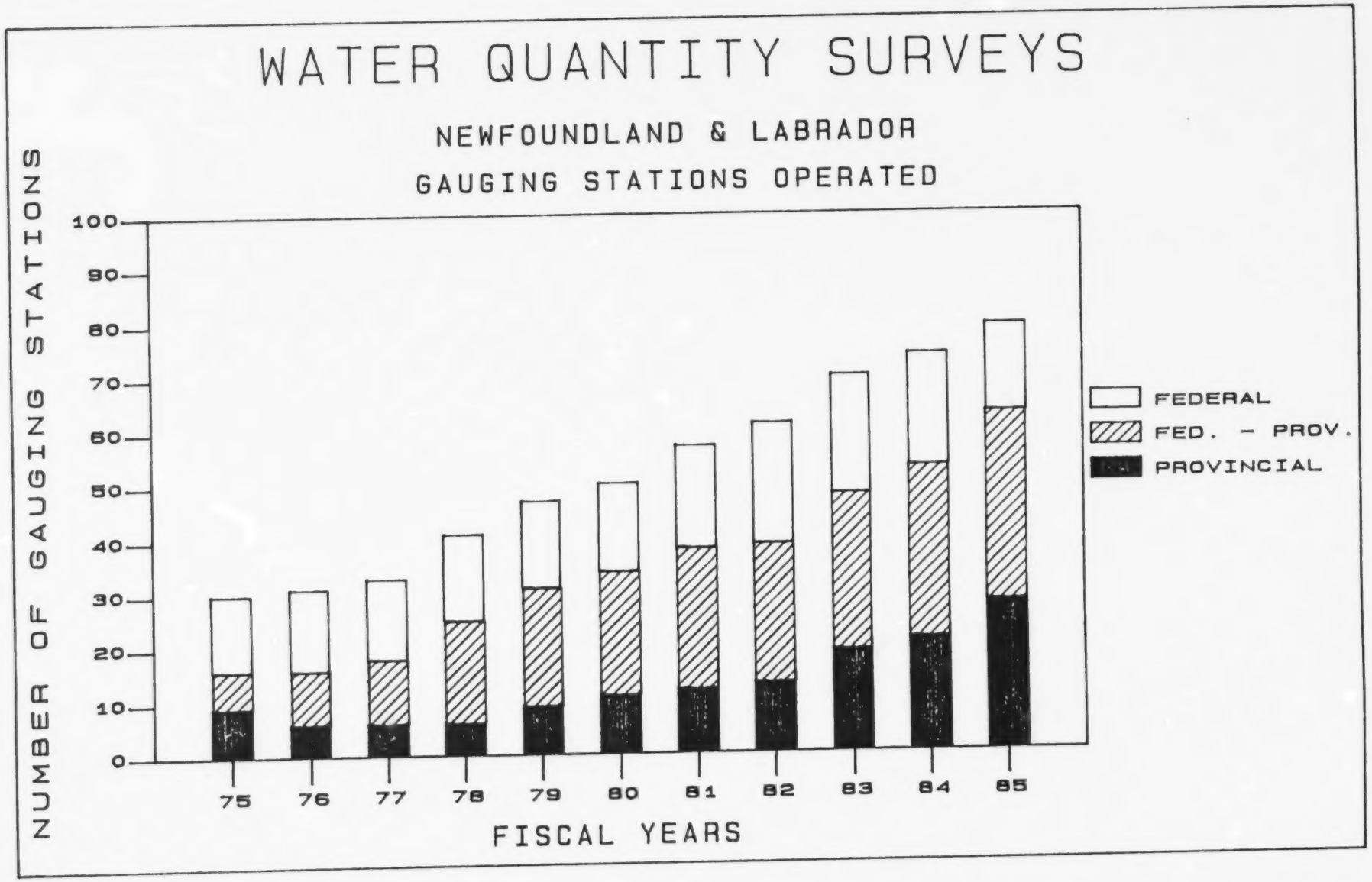
NEWFOUNDLAND

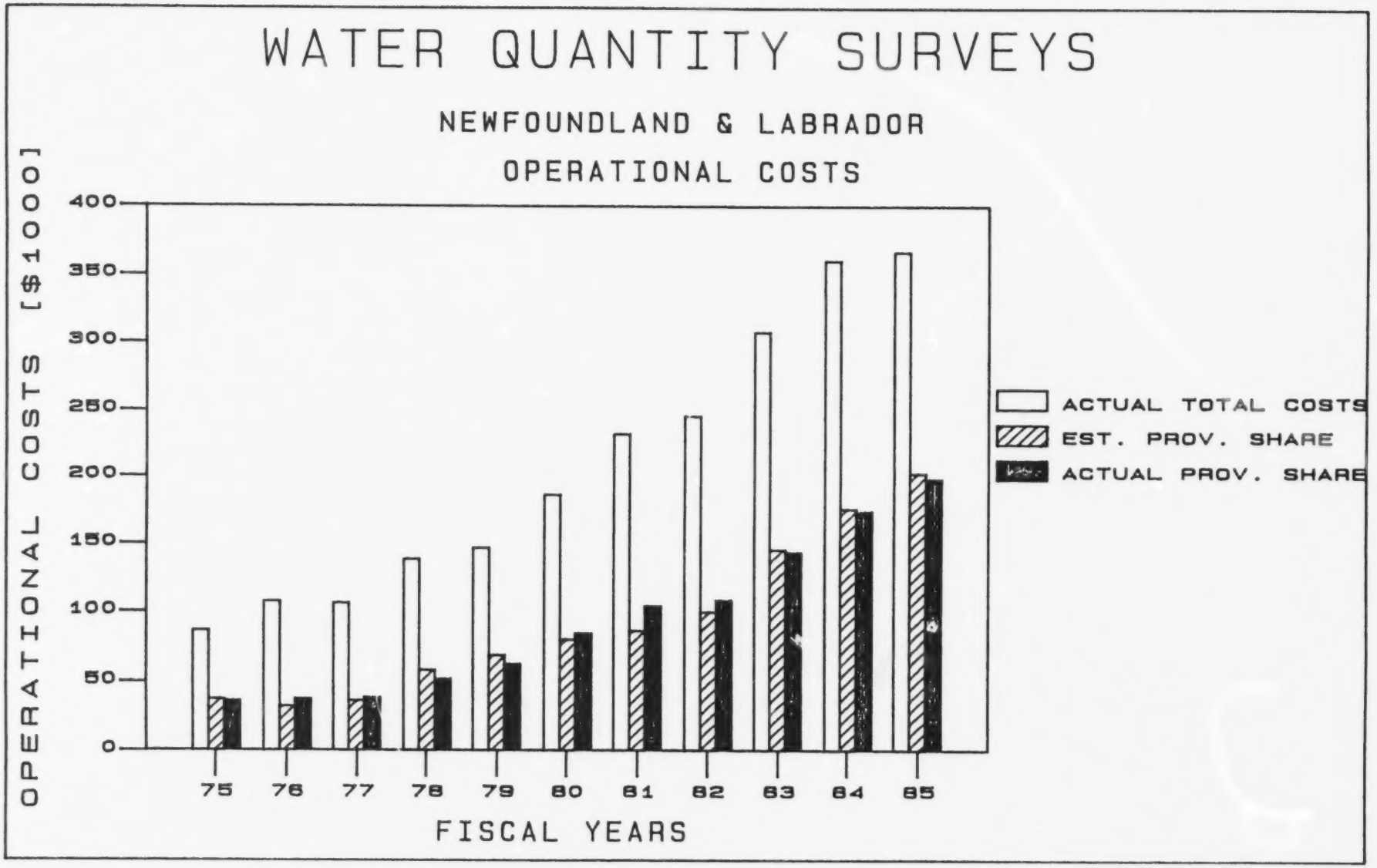
	SCHEDULE "D"				ACTUAL PROVINCIAL SHARE				
YEAR	HYDROMET	SEDIMENT	CONSTR	TOTAL	HYDROMET	SEDIMENT	CONSTR	TOTAL	+CREDIT/DEBIT-
1975-76	37,800	-	3,600	41,400	36,238	-	2,177	38,415	+2,985
1976-77	32,340	-	12,000	44,340	37,840	-	1,573	39,413	+4,927
1977-78	35,520	-	24,480	60,000	38,700	-	13,963	52,663	+7,337
1978-79	56,775	1,400	11,825	70,000	51,371	679	26,000	78,050	-8,050
1979-80	68,338	933	25,729	95,000	62,256	896	22,476	85,628	+9,372
1980-81	78,639	1,475	6,000	86,114	83,518	1,064	7,703	92,285	-6,171
1981-82	83,523	3,750	14,000	101,273	100,726	3,114	16,560	120,400	-19,127
1982-83	96,542	3,744	55,000	155,286	102,735	5,886	47,224	155,845	-559
1983-84	141,457	4,470	38,000	183,927	136,917	6,906	37,864	181,687	+2,240
1984-85	168,244	7,350	52,000	227,594	168,247	5,295	48,662	222,204	+5,390
1985-86	195,563	7,650	36,787	240,000	191,580	6,324	39,203	237,107	+2,893
							NET		+1,237

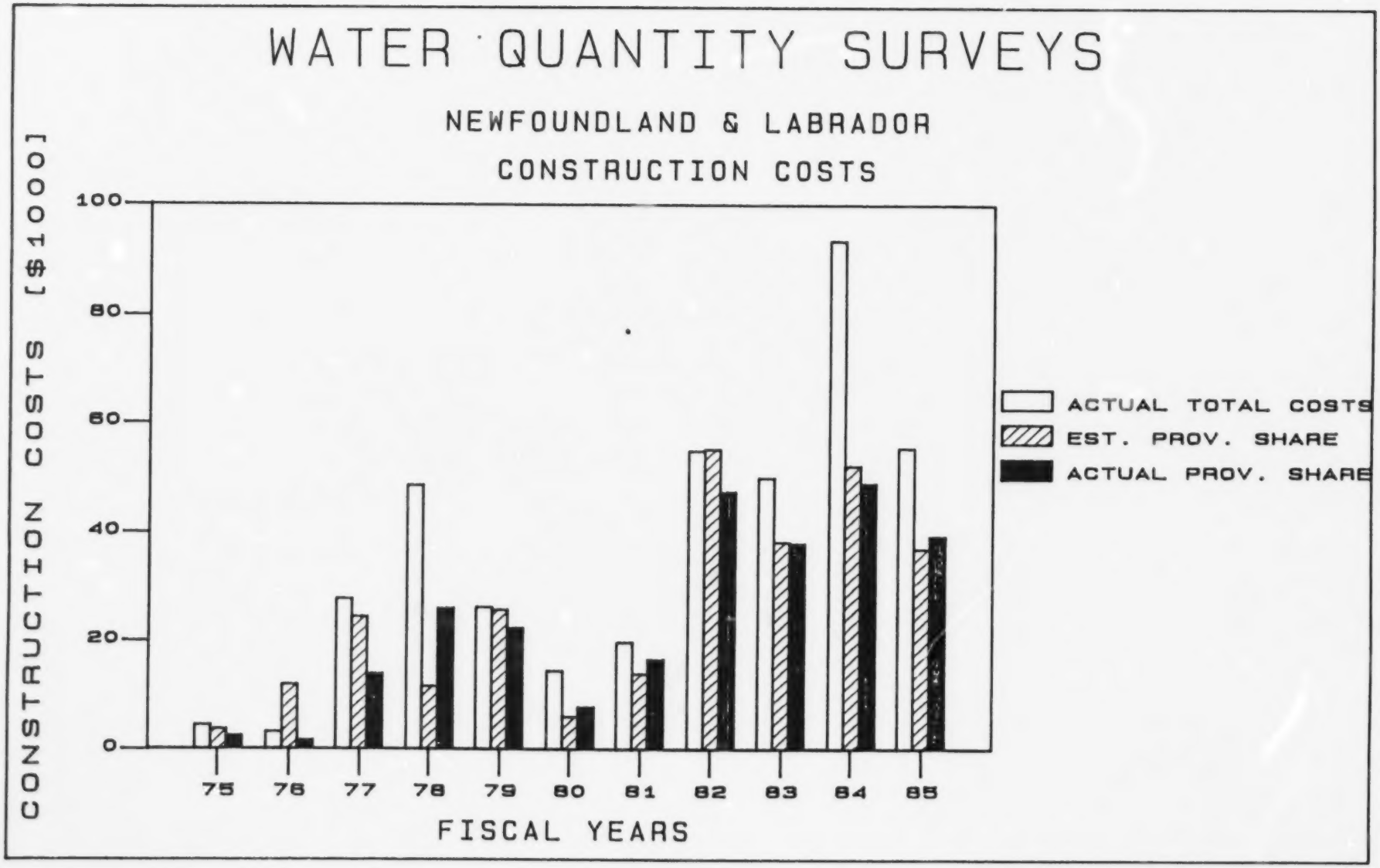
APPENDIX X

ANNUAL GRAPHS

- GAUGING STATIONS OPERATED
- OPERATIONAL COSTS OF GAUGING STATIONS
- CONSTRUCTION COSTS


WATER QUANTITY SURVEYS
NEWFOUNDLAND & LABRADOR
GAUGING STATIONS OPERATED
NUMBER OF GAUGING STATIONS
100
90
80
70
60
50
40
30
20
10
0
75
76
77
78
79
80
81
82
83
84
85
FISCAL YEARS
FEDERAL
FED. - PROV.
PROVINCIAL


WATER QUANTITY SURVEYS
NEWFOUNDLAND & LABRADOR
OPERATIONAL COSTS
OPERATIONAL COSTS [$1000]
400
350
300
250
200
150
100
50
0
75
76
77
78
79
80
81
82
83
84
85
FISCAL YEARS
ACTUAL TOTAL COSTS
EST. PROV. SHARE
ACTUAL PROV. SHARE


WATER QUANTITY SURVEYS
NEWFOUNDLAND & LABRADOR
CONSTRUCTION COSTS
CONSTRUCTION COSTS [$1000]
100
80
60
40
20
0
75
76
77
78
79
80
81
82
83
84
85
FISCAL YEARS
ACTUAL TOTAL COSTS
EST. PROV. SHARE
ACTUAL PROV. SHARE

APPENDIX XI

MINUTES OF COORDINATING COMMITTEE MEETING

WATER QUANTITY SURVEYS

CANADA-NEWFOUNDLAND

CO-ORDINATING COMMITTEE ANNUAL MEETING

1985-86

The Co-ordinating Committee for the Canada-Newfoundland Cost Sharing Agreement on Water Quantity Surveys, met on March 18, 1986 at the Howley Building. St. John's, NF. In attendance were the following:

W. Ullah	Newfoundland Environment, St. John's, NF
D. McBride	Water Resources Branch, IWD Dartmouth, N.S.
D. Snow	Water Survey of Canada, St. John's, NF
D. Randall	Water Resources Branch, IWD, Dartmouth, N.S.

1) Review Minutes from March 21, 1985 Meeting

D. McBride led a scanning of the minutes from the 1985 Co-ordinating Committee Meeting. It was noted that W. Ullah had not written to CFLCo. as yet concerning interest by the company in the operation of four gauging stations.

D. McBride stated that he has completed his human resources plan. He noted that the one planned PY for network expansion has been axed.

2) Business Arising from Minutes

There was no business arising from the minutes, not covered by the agenda.

3) Annual Report for 1984-85

D. McBride referred to Page 55 of the 1984-85 Annual Report on Water Quantity Surveys in Newfoundland. From the table where Schedule "D" payments and actual costs are compared, it was noted that the net difference over the 10 years of the Agreement was only $1656 (under payment by Province). This was considered excellent in view of the total dollars involved over the years.

W. Ullah discussed the topic of major maintenance during 1984-85. He stated that he would like to know about planned major maintenance in advance such that it can be approved as capital expenditure prior to execution of projects.

4) Schedule "A" Listings of Gauging Station Responsibility Classifications

D. McBride noted that a tributary station on the Exploits River, Junction Brook station, is being held in Federal 4 classification. W. Ullah said that he is waiting for approval of the proposed Federal-Provincial agreement on flood forecasting. If an agreement evolves, then the Junction Brook station will be moved to Provincial classification, otherwise, the station will be proposed for Federal-Provincial classification. It is expected that a decision on the ultimate destiny of the station will be made at next year's co-ordinating committee meeting.

D. Randall explained the arbitrary placement on the schedule "A" listings of the new stations constructed during 1985-86. The Main River station was previously denoted as a Federal-Provincial station, however, no discussion had taken place on the other stations. This has been referred to D. Ambler for selection of one more FP station. For

computation of costs, D. Randall said that the Bartletts River station had been selected as the second FP station. Both W. Ullah and D. McBride agreed to the placement of Bartletts River in the Federal-Provincial 3 classification.

W. Ullah inquired as to whether there was a gauging station on the Corner Brook water supply. D. Snow replied in the negative.

On the subject of the contributed stations appearing with the schedule "A" listings, it was noted that data is not received and consequently not published for Heart's Content River, New Chelsea Brook and Seal Cove River. D. Snow said that he will visit Kelvin Barrett of Newfoundland Light & Power to determine whether daily records are being kept by the company. It was noted that monthly means were published up to about 1968, but since then with the change to an automated publication, no data has been published. D. Snow will report to Dartmouth on this matter.

5) Estimated Cost of Operations 1986-87

D. McBride discussed the adjustment in technicians' person-years as a result of a reassessment of the number of stations and work involved between the Island and Labrador. Also, he said that normally an area head position is not chargeable to the Agreement, however, for Newfoundland there are five field technician positions. Supervising four technicians is considered a full load by one supervisor. To account for the one other technician, 0.25 of a supervisor's salary to represent the area head's time spent on supervision has been included in the total salary estimate.

In addition to the adjustments in technicians' person-years, D. Randall said that in view of the fact that technicians' salaries are currently under review, a 3% increase, retroactive to December 1984, has been added to base salaries.

D. McBride noted that the axed PY for an extra technician for network expansion has not been included with the technicians' salaries.

W. Ullah reviewed all costs and approved the estimates as presented. D. McBride said that the Province will also have to pay about $12000 in order to cover the imputed rental for the DCP Expansion Program.

6) New Construction 1986-87

D. McBride referred to the fact that the extra technican position will not be available this year and the fact that capital money will be required for several major maintenance projects this year. In view of this, he stated that he would like to place expansion of the Newfoundland network on hold. Also, he had no indication to date of his A-Base capital for 1986-87, and expansion of the network will require capital for purchasing recorders and manometers.

W. Ullah stated that he has funding for expansion in 1986-87 and would like to see six new stations installed, on a proportionality of 2 Federal-Provincial and 4 Provincial stations.

It was decided to examine the financial requirements for major maintenance projects before setting any plans for network expansion.

D. Randall cited two older cableways with buried deadmen anchorage that require replacement. Estimated contractual work in the re-building of these cableways would be about $7000 for the Pipers Hole River, $3500 for the St. Genevieve River and $4500 for the Great Rattling Brook. A discussion took place on the relative merits of concrete

anchorage, buried timber deadmen and steel plate anchors. It was decided to ear mark $15000 for these 3 projects which would be shared equally as all 3 stations are classified as Federal-Provincial.

It was noted that there are other older cableways that require consideration but these cableways can wait for another year. D. Snow mentioned that the cableway on Harrys River could take precident this year over Great Rattling Brook. It was also noted that a new shelter will be required at the Torrent River station.

W. Ullah noted that the Province would have in the order of $37000 available for new station construction, over and above the Provincial share of cableway major maintenance. He felt that these funds would support an expansion of 5 new stations - 3 Provincial and 2 Federal-Provincial. The Co-ordinating Committee agreed that the 5 new stations should be constructed, however, the previously noted axed PY and probable lack of A-Base capital funds for recorders and manometers will prevent this expansion this year.

D. McBride agreed to pursue this matter with the Federal Administrator, advising him of the discussion at this meeting and requesting that he attempt to reverse the PY decision. W. Ullah requested a copy of any correspondence. It was noted that until this matter is resolved, the schedule "D" signing will have to be delayed.

7) Proposed MOU For Cost Recovery For Newfoundland Data Collection Platforms

D. McBride stated that there has been an exchange of correspondence between the Administrators on the purchase, installation and cost recovery through imputed rental for the DCPs. He noted that a Memorandum of Understanding has been drafted by D. Randall, for

consideration. W. Ullah remarked that he had not received a copy in the mail and will have to review the tabled draft copy prior to commenting. He will send his comments to D. McBride.

D. McBride said that the draft MOU only covers minor maintenance of DCPs, conducted during hydrometric visitations where costs are included with the costs of the hydrometric survey. He said that major maintenance such as return of instrument to manufacturer or making special trips for maintenance would have to be charged for separately. D. Randall mentioned a proposed service contract being initiated by WRB Headquarters with the manufacturer, costing about $50 per DCP per year.

The idea of including service costs for the DCPs, acquired on behalf of the Province, in the Water Quantity Surveys Agreement was discussed in detail. W. Ullah requested the handling of service costs, considered to be minimal, in this manner. D. McBride expressed his reluctance to mix DCP costs with hydrometric costs. It was noted that costs associated with the Federal DCPs in Newfoundland are coded to a separate cost code. D. Snow reviewed where the Federal DCPs have been installed to date and where DCPs have been proposed. W. Ullah requested a copy of the listing of Federal DCP locations. After a review of the Federal listing, he will inform D. Snow as to where the additional 14 DCPs should be located.

8) Action Plan From Results of Washburn-Gillis Study On Atlantic Region Sediment Network

D. McBride reported that the sediment study has been completed by the consultant and the report has been printed. Water Resources Branch is now in the process of addressing the recommendations in the preparation of an action plan.

He noted that the Branch is not getting good coverage of sediment discharge at gauging stations with lay observers. He reviewed what was happening on sediment in the other 3 Atlantic Provinces.

D. McBride reported that plans are being formed for the staging of a workshop on sediment, in conjunction with the Atlantic CSCE Hydrotechnical Conference. He discussed the layout of the workshop and described the possibility of having a consultant organize the workshop in its entirety, with a price tag of $16k. He said that he would like to have the workshop co-sponored by the federal and provincial co-ordinators to the Costs Sharing Agreements.

W. Ullah indicated his willingness to participate in the support for this workshop, provided he receives a letter from D. McBride indicating that each of the other three provinces are willing to provide support.

9) "Discussion Paper on WRB's Level of Service For Real Time Data"

D. McBride summarized in general the content of the discussion paper. He noted that a policy will evolve whereby a user will have to pay for services rendered. He explained what Newfoundland Environment would have to do in order to retrieve the data from DCPs independent of WRB.

W. Ullah indicated that Newfoundland Environment would be willing to share in the costs for retrieval services. He said that he will send a note to D. McBride on responses to questions on real-time data composed by WRB Headquarters.

10) Other Topics

Registration of Gauging Stations Built on Crown Land

W. Ullah stated that he has received correspondence from Department of Forests and Lands citing the "deplorable mess" left at the Main River gauging site, built last fall. As a result of this the Department wants to have all future gauging sites on crown land registered with them prior to issuance of a permit. As other government agencies will be involved in the approval process, it could take 6-8 weeks to acquire permission. W. Ullah wished to know if there was sufficient time for gauging stations to be built in the same year as the reconnaissance in view of this new type of "red tape". He said that he would do his best to cut the time down to about 4 weeks.

It was agreed that only basic general information, not full contractual plans and specifications, will be sent with the application to Department of Forests and Lands.

D. Snow noted that the Main River gauging station was constructed late in October and that time did not permit the cleanup of the slash left from clearing trees for the shelter, cableway and helicopter pad. He said that he will check with C. Baker on the extent of the work involved.

11) Annual Report-Display of Actual and Estimated Costs

W. Ullah suggested that the estimated costs for a fiscal year be shown with the actual costs in the Annual Report. D. Randall said that he will attempt to address this suggestion in the 1985-86 Annual Report.

Assessment of Data From Contributed Stations

The idea of reviewing and assessing contributed data was put forward a couple of years ago at the national level, however, to date nothing has been done.

It was suggested that this work could be done by a private consultant. D. McBride said that he will put forward this suggestion at WRB Managers' Meeting in June. W. Ullah said that Newfoundland Environment would be willing to share in the costs of a small contract for the assessment of data and would like to pursue this project in 1987-88.

It was agreed that initially the assessment would only involve documentation on how data are determined. If verification via field surveys is required, then this would be done at some other time. W. Ullah requested that WRB prepare the terms of reference for the assessment.

WATER QUANTITY SURVEYS

PROVINCE OF NEWFOUNDLAND

ESTIMATED ANNUAL COSTS FOR ISLAND - 1986-87

OPERATIONAL COSTS FOR HYDROMETRIC SURVEYS

Personnel - Basic Pay - 01, 02, 03, 04 (Salaries of hydrometric technician including overtime - 5.2 Technicians, 1.05 Supervisors)	$174,000
Transportation and Communication	
Travel and Removal - 07	17,000
Transportation and Postage - 08	2,000
Telecommunications - 09	Nil
Professional and Special Services	
Professional Services - 11	1,200
Other Services - 15	2,000
Rentals	
Rentals - 16	20,000
Purchased Repair and Upkeep	
Equipment Purchased and Repairs - 17	4,000
Building and Structure Repairs - 18	4,000
Utilities, Materials and Supplies	
Public Utility Services - 19	2,400
Purchased Materials - 20	13,000
Parts and Consumable Tools - 21	3,000
Other Costs - Data Processing Costs	9,100
Depreciation of Vehicles (5)	11,000
- Depreciation of field equipment and instruments	9,000
TOTAL	$271,700

WATER QUANTITY SURVEYS

PROVINCE OF NEWFOUNDLAND

ESTIMATED ANNUAL COSTS FOR LABRADOR - 1986-87

OPERATIONAL COSTS FOR HYDROMETRIC SURVEYS

Personnel - Basic Pay - 01, 02, 03, 04 (Salaries of hydrometric technicians including overtime - 0.8 technician, 0.2 Supervisor)	$ 38,700
Transportation and Communication	
Travel and Removal - 07	$ 13,000
Transportation and Postage - 08	3,500
Telecommunications - 09	NIL
Professional and Special Services	
Professional Services - 11	NIL
Other Purchased Services - 15	4,000
Rentals	
Rentals - 16	50,000
Purchased Repair and Upkeep	
Equipment Purchased and Repairs - 17	1,000
Building and Structure Repairs - 18	NIL
Utilities, Materials and Supplies	
Public Utility Services - 19	NIL
Purchased Materials - 20	2,000
Parts and Consumable Tools - 21	500
Other Costs - Data Procesing Costs	1,600
- Depreciation of Field Equipment and Instruments	2,000
TOTAL	$116,300

WATER QUANTITY SURVEYS

PROVINCE OF NEWFOUNDLAND

ESTIMATED ANNUAL COSTS - 1986-87

OPERATIONAL COSTS, SEDIMENT SURVEYS

Personnel - Basic Pay - 01, 02, 03, 04	$	NIL
Transportation and Communication		
Travel and Removal - 07	$	200
Transportation and Postage - 08		1,000
Telecommunications - 09		NIL
Professional and Special Services		
Professional Services - 11		3,200
Other Purchased Services - 15		NIL
Rentals		
Rentals - 16		NIL
Purchased Repair and Upkeep		
Equipment Purchased and Repairs - 17		NIL
Building and Structure Repairs - 18		NIL
Utilities, Materials and Supplies		
Public Utility Services - 19		NIL
Purchased Materials - 20		200
Parts and Consumable Tools - 21		100
Other Costs - Sample Analysis		3,500
- Depreciation of Field Equipment and Instruments		1,100
TOTAL	$	9,300

WATER QUANTITY SURVEYS

CANADA-NEWFOUNDLAND COST SHARING AGREEMENT

1986-87 ESTIMATED PROVINCIAL COST

HYDROMTRIC

ISLAND

Station Classification	Stations	Station Units
F1	3	3.0
F4	9	9.0
FP3	32	32.0
P	28	28.0
TOTAL	72	72.0

Average Cost/Station Unit = $271700/72.0 = $3,774
Provincial Share = $3774 (32.0/2) + 3774 (28.0) = $166,056

LABRADOR

Station Classification	Stations	Station Units
F2	2	2.0
F4	2	2.0
FP3	5	5.0
P1	4	1.7
TOTAL	13	10.7

Average Cost/Station = $116300/10.7 = $10,869
Provincial Share = $10869 (5.0/2) + $10869 (1.7) = $45,650

SEDIMENT

Station Classification	Stations
FP	2
P	2
TOTAL	4

Average Cost/Station = $9,300/4 = $2,325
Provincial Share = $2325 (2/2) + 2325(2) = $6,975

TOTAL PROVINCIAL SHARE:		
Hydrometric (Island)	-	$166,056
Hydrometric (Labrador)	-	45,650
Sediment	-	6,975
TOTAL		$218,681